

REMARKS

Claims 1-7 are pending in the present application. Applicants respectfully request that the present application be re-examined and reconsidered in light of the Remarks that follow.

In the outstanding Official Action claims 1-7 were rejected under 35 USC 103(a) as allegedly being unpatentable over NISHIYAMA et al. in view of KAZACOS et al. This rejection is respectfully traversed.

Applicants respectfully submit that the proposed combination of NISHIYAMA et al. and KAZACOS et al. fails to disclose or suggest the claimed invention.

The Examiner is respectfully reminded that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference. Second, there must be a reasonable expectation of success. Third, the references must teach or suggest all of the claim recitations. Moreover, the teaching or suggestion to make the claimed invention and the reasonable expectation of success must be found in the reference, not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991). See also MPEP §2143-2143.03. Upon reviewing the

outstanding Official Action, it is believed that the Official Action fails to satisfy these criteria.

In imposing the rejection, the Official Action alleges that NISHIYAMA et al. discloses a positive electrode active material doped with a dopant comprising an anion having a similar molecular structure to a polymer matrix of at least one of a solid electrolyte and a gel solid electrolyte.

The solid electrolyte contains a proton and should just exhibit proton conductivity. In this patent, its attention is mainly directed to concentration of a proton, and the purpose is reducing contact resistance by raising the affinity between the solid electrolyte and an electrode. Therefore, an anion doped into a positive electrode active material has the same or similar molecular structure to a polymer matrix or at least one of a solid electrolyte and a gel solid electrolyte.

Moreover, this patent discloses that a quaternary ammonium salt can be added for increasing the conductivity. However, such a quaternary ammonium salt is not a "dopant". Indeed, there are no examples using the quaternary ammonium salt.

In imposing the rejection, the Official Action acknowledged that NISHIYAMA et al. fails to disclose an electrolyte solution containing a proton concentration of 5 to 40% or an anion concentration of 30% to 60%.

In an effort to remedy the deficiencies of the NISHIYAMA et al. publication, the outstanding Official Action cites to KAZACOS et al. KAZACOS et al. teaches a method of preparing an electrolyte solution for use in an all-vanadium redox cell or all-vanadium redox battery.

Applicants respectfully submit that one of ordinary skill in the art would lack the suggestion or motivation, either in the publications themselves or in the knowledge generally available to one of ordinary skill in the art, to combine and modify the publications to obtain the claimed invention. The present invention is directed to a secondary battery of a proton conductive polymer. KAZACOS et al. is specifically directed to a method for preparing an electrolyte solution for use in all-vanadium redox cell or all-vanadium redox battery.

As a result, applicants believe that one of ordinary skill in the art would lack the motivation to combine and modify the two cited publications to obtain the claimed invention in light of the specialized teachings of KAZACOS et al.

Moreover, as KAZACOS et al. is specifically directed to all-vanadium redox cells or all-vanadium redox batteries, applicants also believe that one of ordinary skill in the art would lack a reasonable expectation of success of combining NISHIYAMA et al. and KAZACOS et al. to obtain the claimed invention.

Indeed, even if the cited publications were combined, they still would still not teach or suggest all of the claim recitations. While the outstanding Official Action contends that KAZACOS et al. teach that it is conventional to control a proton concentration in sulfuric acid electrolyte to stabilize ions at an elevated temperature, KAZACOS et al. actually teach that one way of increasing the stability of vanadium electrolyte solutions can be enhanced by adjusting the sulfuric acid concentration or total sulfate concentration.

KAZACOS et al. teach that while an increased  $H_2SO_4$  concentration will stabilize the V(V) ions at elevated temperatures, the increase sulfate level will reduce the saturation solubility of the V(II), V(III) and V(IV) ions (KAZACOS et al., paragraph 24).

On page 3 of the outstanding Official Action, it is noted that the proton concentration of the sulfuric acid electrolyte is less than 90% (KAZACOS et al., paragraph 409 and Table B).

There is simply no recognition or teaching of the claimed ranges set forth in the present invention. Moreover, there is no suggestion to utilize an anion concentration that is higher than the proton concentration.

Thus, KAZACOS et al. fails to disclose or suggest a proton concentration of 5 to 40% in an anion concentration of 30

to 60% in solution. Moreover, KAZACOS et al. do not teach that the anion concentration is at least higher than the proton concentration.

Thus, applicants respectfully submit that the proposed combination of NISHIYAMA et al. in view of KAZACOS et al. fails to render obvious the claimed invention.

In view of the present amendment and the foregoing remarks, therefore, it is believed that this application is now in condition for allowance, with claims 1-7, as presented. Allowance and passage to issue on that basis are accordingly respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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